

THE BIG POND

CS1.48;

74

Federal

jobs

for

Engineers

Physical Scientists

Mathematicians



ON THE COVER:

Cross-sectional view of vortex wake shedding from a stationary cylinder. Patterns such as these are used by Federal scientists to study the mechanisms of self-excited vibrations.

PROGRAM DEVELOPMENT DIVISION • BUREAU OF RECRUITING AND EXAMINING • U.S. CIVIL SERVICE COMMISSION

Your Government Is an Equal Opportunity Employer

CS 1,400 74



“A
LITTLE
FISH
IN
A
BIG
POND”

If that's what you think about working for the Government, you're partly right.

Government *is* big. And because it is, it faces big problems, offers big responsibilities and is involved in the kinds of big projects you might not get a crack at anywhere else.

For talented people, Government's immensity is one of its major advantages. The Big Pond, with its broad scope and tremendous diversity, gives you elbow room, a chance to concentrate on the kind of activity that really interests you. It could be a small research project or a tremendous team effort.

And Government's size allows you flexibility: you can move from one program to another, from one area of the country to another, or from one agency to another—wherever your abilities take you.

One more thing about your Government: there's plenty of room at the top. If you measure up to the challenges of Government work, you'll find there's plenty of opportunity to be a *big* fish in the Big Pond.

Navy oceanographer-diver at work.



GOVERNMENT HAS VARIETY . . .

ENGINEERING: Naval Architecture, Mechanical, Chemical, Safety, Fire Prevention, Materials, Civil, Nuclear, Electrical, Electronic, Aerospace, Petroleum, Agricultural, Ceramic, Welding, Industrial, Mining, Sanitary.

ARCHITECTURE AND LANDSCAPE ARCHITECTURE

PHYSICAL SCIENCE: Oceanography, Health Physics, Geophysics, Hydrology, Chemistry, Metallurgy, Aerospace Technology, Meteorology, Geology.

MATHEMATICS AND STATISTICS: Actuarial, Mathematics, Mathematical Statistics, Statistics, Cryptography, Operations Research Analysis.

PATENTS: Administration, Advising, Classifying, Examining.



No written examination is required for the jobs described in this booklet. You can get additional information and application forms by mailing the post card on the back cover.

The Vertical Assembly Building, Merritt Island Moonport, Cape Kennedy. Built under supervision of the Army Corps of Engineers, the VAB will accommodate complete assembly, checkout and launch of the Advanced Saturn C-5 rocket and its manned spacecraft. It's the largest building ever built in the free world, exceeding the size of the Great Pyramid of Cheops in Egypt, which stood for 45 centuries as man's mightiest effort in the construction field.

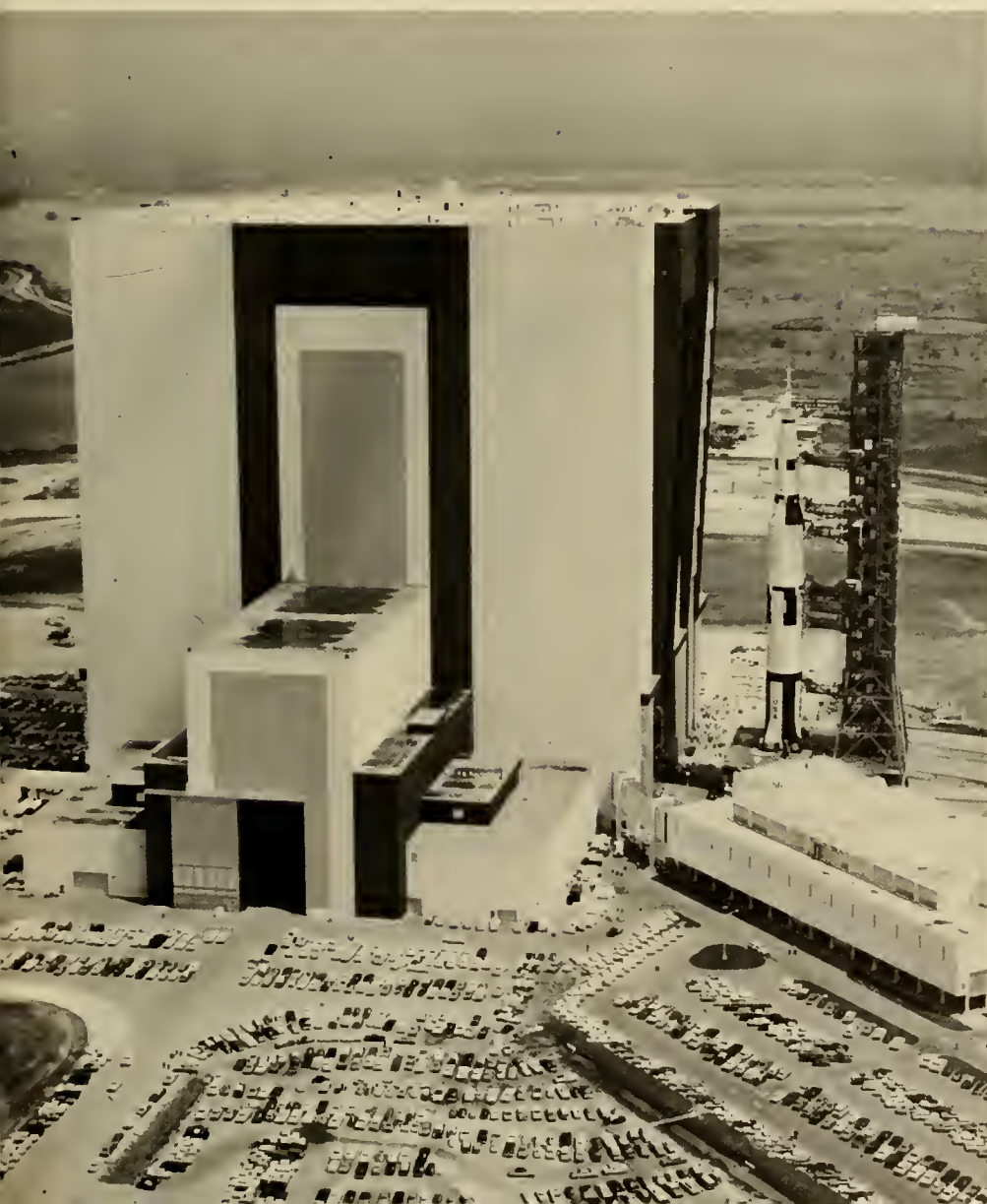
AND SCOPE

From Minute

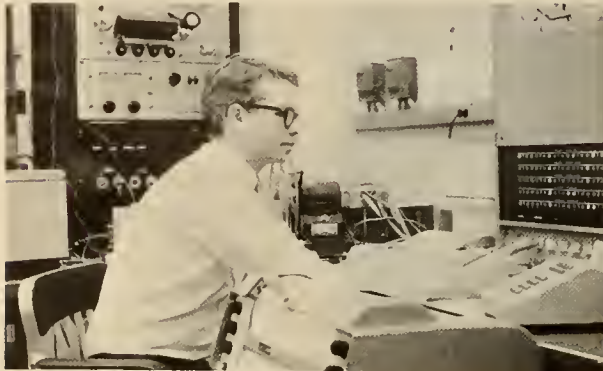


A drop of water, photographed by Vernon P. Robey at the Naval Research Laboratory.

To Monumental



"I don't look on it as just a stepping stone."



Sam Bryan
Mathematician, United States
Public Health Service

Sam Bryan works on a project at the National Institutes of Health with Dr. Louis Lipkin and Russell Kirsch. They're trying to build a computer system that will be able to "look" at a photograph of a portion of the human brain and through its program be able to deduce from the photo everything which the current state of medical knowledge will allow.

In Sam's view the Government is sponsoring the most interesting work being done anywhere. ". . . It can underwrite projects that the average industry can't justify in terms of a highly likely payoff. For this reason you may well be involved in broadly encompassing, state-of-the-art projects. . . . If you asked about the advantages of working for the Government in one word, I'd say 'resources.' Included in that are the people you work with; you learn from them. They're true scientists, really interested in what they are doing."

After graduating in 1963 from the University of North Carolina, Chapel Hill, with a degree in mathematics, Sam is working on a master's degree in Information Science. He plans to stay with the Government project. "It's important to me to be working at a stimulating job and you can't beat what I'm in at N.I.H."

"Anyone who gets ahead puts forth extra effort."



Mrs. Marjorie Townsend
Project Manager
Goddard Space Flight Center

Small, blue-eyed Marjorie Townsend thrives on responsibility. As Project Manager for SAS (Small Astronomy Satellite) for the National Aeronautics and Space Administration, she's responsible for all aspects of the satellites development, fabrication, testing and launch. She has managed to combine a 20-year Government career with being the wife of a Washington obstetrician and mother of four growing boys.

Earning her degree in Electrical Engineering from George Washington University, Mrs. Townsend worked with the Naval Research Laboratory on anti-submarine warfare and underwater target classification. Since joining NASA in 1959, she has worked increasingly in a management capacity—as she says, "farther away from the nuts and bolts." Her current assignment is designed to map the sky for X-Ray sources located both inside and outside of our galaxy, with subsequent flights including studies on gamma-ray, ultra-violet, visible and infrared regions of the spectrum.

When asked about the possible difficulties for a woman engineer, Mrs. Townsend said she often worked a little harder. "But," she went on, "*anyone* who gets ahead puts forth extra effort."

WHERE THE JOBS ARE

Of all scientists, engineers and technicians employed by the Government, 90% work for the following 11 agencies:

- Department of Agriculture
- Department of the Air Force
- Department of Army
- Department of Commerce
- Department of Health, Education and Welfare
- Department of Interior
- Department of Navy
- Atomic Energy Commission*
- Department of Transportation
- National Aeronautics and Space Administration
- Veterans Administration

In Government, your professional skills give you a reasonable option in choosing where you want to live and work.

Take one field, for example . . . electronic engineering. Of 14,756 electronic engineers who worked for the Federal Government in October, 1967, only 2,888 were in Washington, D.C. 11,633 worked at other locations in the United States; 46 were in U.S. Territories and 189 were working in foreign countries.

*For information on working for AEC, write:

Atomic Energy Commission
Division of Personnel
Washington, D.C. 20545

Research cartographer Maurits Roos looks into the stereo viewer of the Automatic Point Transfer Instrument (APT) under development by the U.S. Army Engineer Topographic Laboratories, Fort Belvoir, Va. Comparator tables do the measuring and marking of three photographs simultaneously. Photographs with large formats, scale changes and tilts can be handled by this equipment.



PROFESSIONAL GROWTH

In fast moving, complex technical fields, skills that aren't up-to-date become obsolete very quickly.
... If you're standing still, you're losing ground.

Training is an important part of working for the Government. 97,773 professional and scientific people received training at full pay in 1968 . . . 44,540 of them taking courses at their own agencies, and 4,678 enrolled in interagency programs. Nearly half of the

advanced training took place at non-Government facilities—colleges and universities, professional institutes, industrial labs or research foundations. 1,225 were enrolled in long-term advanced education, while 47,330 took shorter courses. Of those taking long-term programs, 61% were scientists and engineers.

... If you go with Government, you can grow with Government.

A physicist explaining a new idea in equations of state of liquid explosives.



“I couldn’t hope for a finer group of people to be associated with.”



Laura Wilson
Landscape Architect
National Park Service

After earning her BS in Landscape Architecture from Iowa State University in 1953, Laura Wilson worked with private firms in Washington, D.C., and in San Francisco. In 1957 she entered the National Park Service.

“In my field,” she says, “the main advantage of working for the Government is in the opportunity to experience a great variety of projects over a large geographic area.” Now stationed in the Park Service’s Design and Construction Office in San Francisco, she is currently working on special design projects, many involving site developments around public buildings.

In addition to the diversity of experience to be gained—the original reason she began work in Government—Miss Wilson mentioned an added plus factor: the caliber of people she works with. “My supervisors have, for the most part, been capable and supportive, and have entrusted me with projects which have allowed me to exercise my greatest potential in the field of landscape architecture design.

“On the personal level, I have developed good and lasting friendships. I couldn’t hope for a finer group of people to be associated with. It is my hope, in this era in which the trend to depersonalization is rampant in organizations, that the spirit existing in the National Park Service can survive.”

“The biggest thing is the freedom to do research fulltime.”



Dr. Dolphus E. Milligan
Physical Chemist
National Bureau of Standards

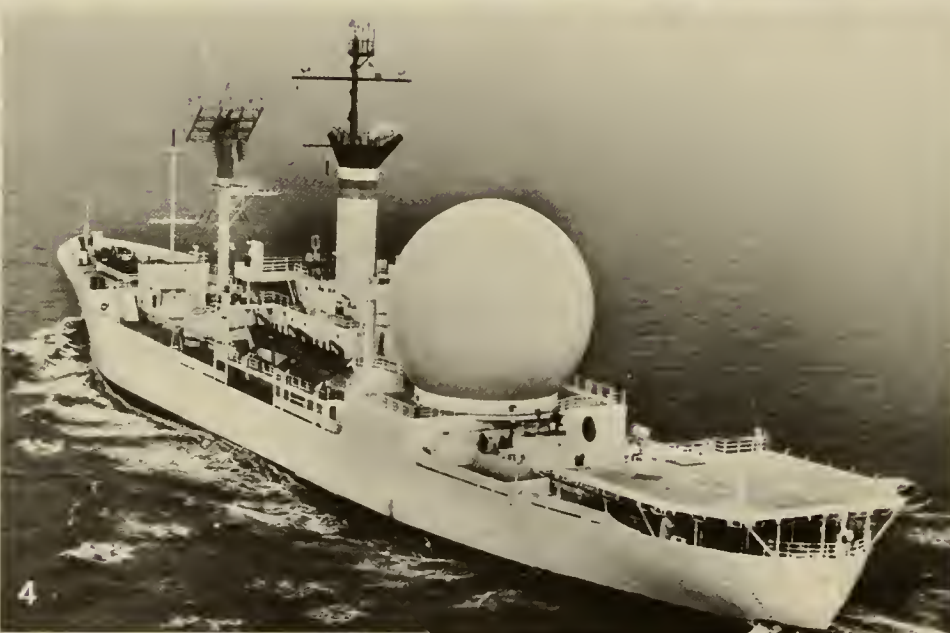
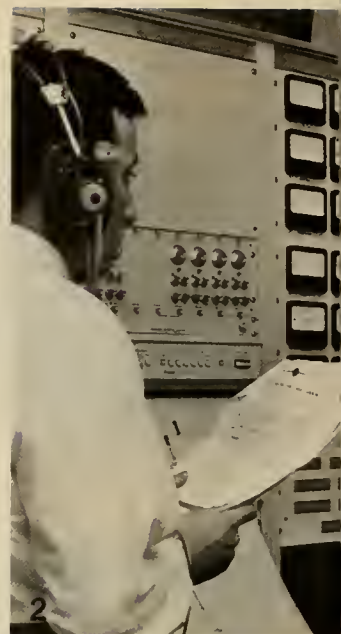
After a pre-Government career which included a year of teaching at the college level and six years with a private institute, Dr. Milligan began work at the National Bureau of Standards in 1963. Among the reasons he cites for doing so are “research facilities ideally suited to work I was engaged in.”

Dr. Milligan, with his co-worker, Dr. Marilyn E. Jacox, is doing basic research—part of the project being to devise techniques to trap and study free radical species to learn something about the nature of chemical bonding of the species. He started this work while acquiring his Ph.D. in chemistry at the University of California at Berkeley and is able to pursue that interest within the mission of NBS.

The caliber of people in other disciplines at NBS is important, too. “You’re not isolated. Cross-fertilization between areas of research is part of the atmosphere here. If you turn someone loose with a lot of hardware in isolation, he wouldn’t be so productive.”

In connection with his work, Dr. Milligan has published over 50 papers—more than half of them in collaboration with Dr. Jacox—and has travelled extensively, including a trip to Russia in 1967. In 1966 he received the first Professor Arturo Miolati Prize for outstanding scientific achievement, in a ceremony at the Italian Embassy.

Dr. Milligan’s office, across the hall from his lab, overlooks the spacious grounds of the ultra-modern NBS complex outside Washington. Aside from the books lining the walls, it’s fairly austere. There is one exception, though—a hand-written sign that admonishes, “Be happy in your work.” For Dr. Milligan, the advice seems unnecessary.

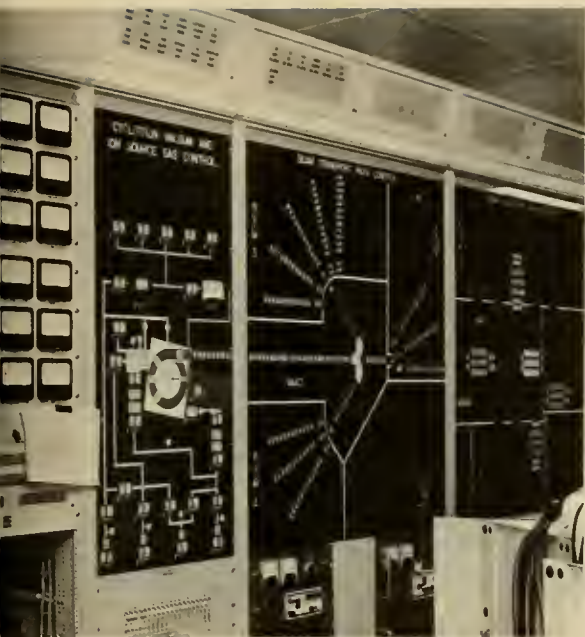


1. Government research scientist Herbert Friedman and his family, following a White House ceremony at which he received the President's Award for Distinguished Federal Civilian Service.

2. Control panel for a cyclotron.

3. Photograph of earth, taken by NASA's Lunar Orbiter V spacecraft, from a distance of 214,806 miles.

4. USNS Kingsport, used as a ground station base for tracking and communications for NASA's Project Syncom.

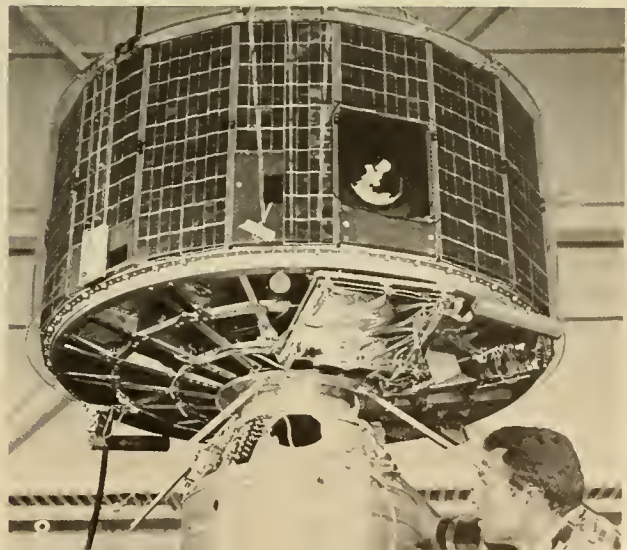
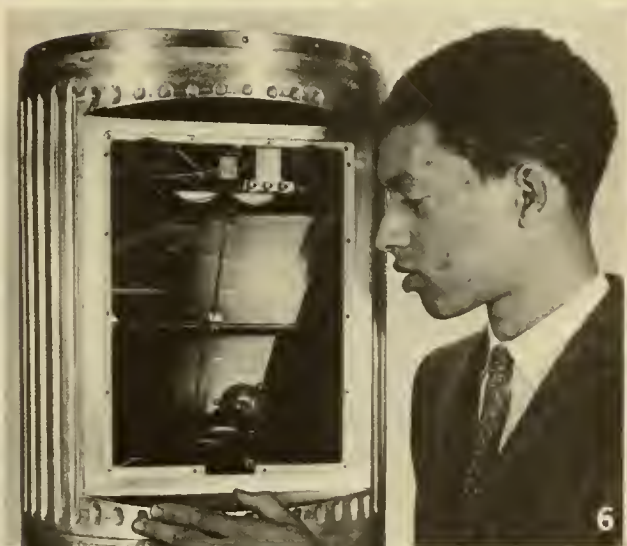


5. Anechoic Chamber. National Bureau of Standards.

6. Dr. George R. Carruthers of the Naval Research Laboratory, shown with the image intensifier ultraviolet spectrograph which he developed for the Aerobee rocket.

7. Gypsum

8. The third ESSA weather satellite, equipped with radiation sensors and advanced Vidicon camera systems, for daily picture coverage of the earth's weather.



“I wouldn’t be here if it weren’t a Challenge”



Dr. Alan M. Lovelace
Director, Air Force Materials Laboratory
Wright-Patterson AFB, Ohio

Toward the end of the Korean War, First Lieutenant Alan Lovelace served as a project officer in the Polymer Section, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio. Thirteen years later, he was Director of the Air Force Materials Laboratory at a salary that falls under Public Law 313. (P. L. 313 applies to research and development positions, providing for salaries beyond grade GS-15 on the General Schedule of pay rates for Government employees.)

Along the way, Dr. Lovelace has received an impressive number of citations, including the Arthur S. Flemming Award, which he received at 29 for specific contributions in the field of fluorine chemistry. Since then, he has worked increasingly in management and feels that Government research and development offers unique opportunity to move ahead. “The beer and pretzels don’t come out even”—so people who can make real contributions to a rapidly expanding technology find a tremendous demand for their talents. And quality counts: “It’s an intangible thing—being in a group of people recognized by peers as really making a contribution. Labs which provide that environment have a tendency to attract and hold good people.”

The AF Materials Lab employs 400 people—340 civilians and 60 military—and Dr. Lovelace’s job is a demanding one. It involves travel, keeping up with the state-of-the-art, and tremendous responsibility. That, perhaps, is the point: as he says, “I wouldn’t be here if it weren’t a challenge.”

“I get an overall perspective”



Dennis C. Judycki
Highway Planning Engineer (Intern)
Department of Transportation

Dennis Judycki’s job with the Federal Highway Administration’s Bureau of Public Roads has kept him on the move. Since earning his MSCE in 1968, he’s been participating in an 18-month training program with a special assignment in planning. The program includes rotating assignments all over the country—so far concentrating on research and general and urban planning in California and, presently, in the Midwest.

“Although my FHWA job is relatively new, it has incorporated responsibility, challenge and satisfaction. I get an overall perspective of my profession by working with total programs, and can see where transportation planning fits into other complex but separate engineering functions. And I enjoy working with a large organization which employs or deals with the most respected and dynamic professionals in my field of interest.”

Judycki feels the trainee program offers a good foundation for the practical application of his educational background, as well as opportunities for advancement and travel. Aside from these advantages, a big point, for him, is the chance to build public relations. He’s concerned that the public may not always understand what a Government agency is doing and why.

In Government work—building highways and better communications—Dennis Judycki is lucky enough to be where he can really do something about the things he cares about.

RECOGNIZING ACHIEVEMENT

PRESIDENT'S AWARD FOR DISTINGUISHED FEDERAL CIVILIAN SERVICE. The Presidential gold-medal award is given each year, generally to not more than five persons from the career service whose outstanding achievements have current impact on improved government or the public interest, and which exemplify exceptional imagination, courage and high ability. Many of these awards have gone to scientists and engineers.

CASH AWARDS—Lump-sum cash awards are made up to and including the maximum of \$25,000. In the past, the largest cash awards have gone to scientists and engineers, either individually or as members of team efforts.

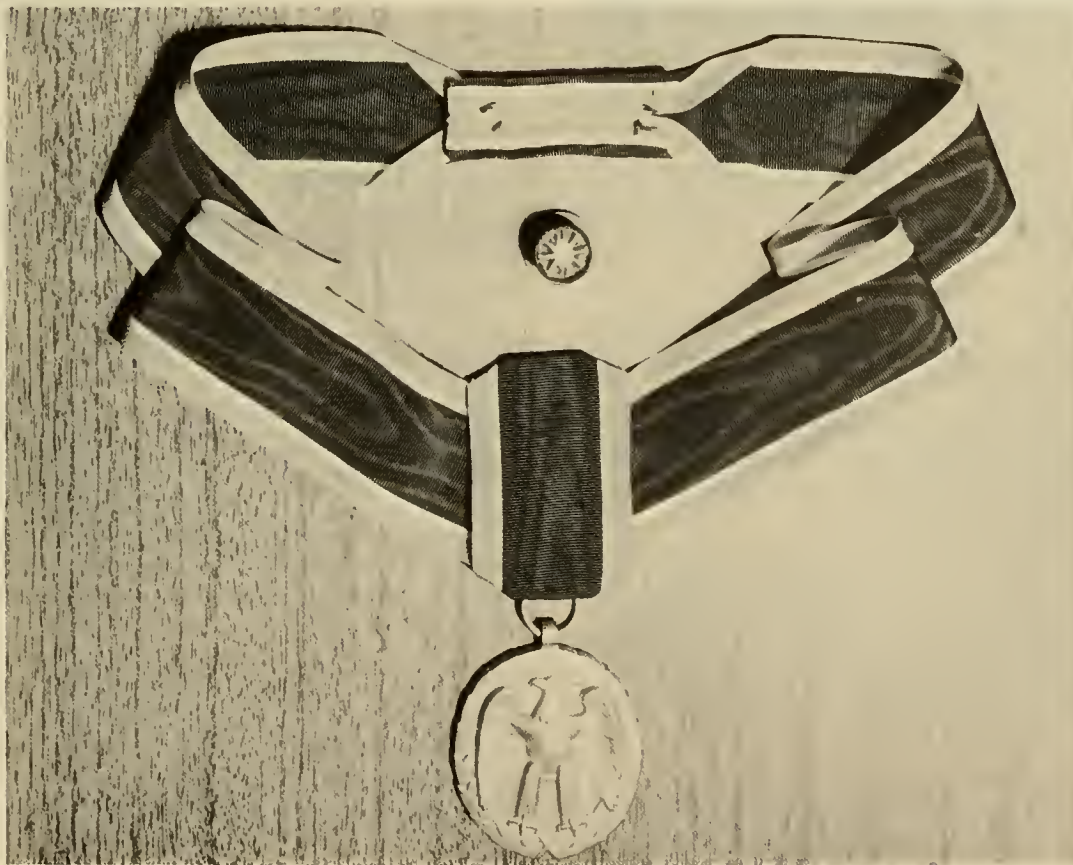
SPECIAL SCIENCE AWARDS—Awards specifically for science and engineering achievements have been provided for by individual agencies. They are generally competitive, limited in number, granted for accomplishments which merit the acclaim of scientists and result from selection by persons of recognized standing in their professional fields.

AWARDS FOR TECHNICAL PAPERS—To encourage Government scientists to publish and present high-quality papers, several organizations in Government give cash awards for technical papers.

INVENTION AWARDS—Some of the largest cash awards granted, as well as many smaller ones, are given each year to encourage patentable ideas for inventions which are of value to the Government.

AWARDS FROM OUTSIDE SOURCES FOR GOVERNMENT EMPLOYEES—Career scientists and engineers are eligible to receive awards from non-Federal organizations, among them the Rockefeller Public Service Awards, the Career Service Awards of the National Civil Service League, the Arthur E. Flemming Awards and others. In addition, Federal employees have often won awards from professional societies which are not specifically for Government workers.

QUALITY INCREASES IN SALARY—The Government pay system provides for ten steps or salary levels within each pay grade. Employees who excel may receive "quality increases" by being raised a step on the pay scale in response to superior performance.



The President's Award for Distinguished Federal Civilian Service

“Doing what I wanted to do outweighed more money.”



Glenn E. Wangdahl
Naval Architect
U.S. Navy Department

Following graduation from the University of Michigan in 1965, Glenn Wangdahl accepted the lowest starting salary he was offered and went to work for the Navy, because, as he says, “I didn’t want to get too specialized.” Having worked for the Navy two summers as a student, he felt that a Government job would offer him a better chance to use his skills in all areas of naval architecture.

After three years at Navy, he’s now a GS-12 (on the 18-Grade General Schedule) and making more money than many people who graduated with him and accepted higher starting salaries with firms and design offices.

Glenn works at NAVSEC (the Naval Ship Engineering Center) developing characteristics for ship design by applying computer techniques to classical naval architecture. His rapid advancement has been accelerated by taking advantage of on-the-job training, including work at shipbuilding facilities and at the Naval Ship Research and Development Center, as well as training with FORTRAN.

Aside from opportunities for going places in his field, working in Government gives Glenn Wangdahl and other young engineers like him a special challenge—the chance to do the kind of work that doesn’t exist anywhere else.

“Like a big university with no classes to teach . . .”



Joseph Alexander
Physicist
Goddard Space Flight Center

In his office off a corridor where steel cabinets marked “Lower Ionosphere” share space with pinups of Charlie Brown and Copernicus, Joseph Alexander observed that Government is “the only place where you can have freedom and the opportunity to concentrate full-time on basic research.”

Alexander has been one of the major scientific experimenters on a five-year project which culminated in the successful launch and operation of the small radio astronomy explorer, Explorer 38. The satellite is designed to monitor low frequency radio signals which can’t penetrate the earth’s atmosphere, but are bounced back into space. Its radio astronomy antennas, when extended to their fullest length, give the spacecraft an overall height about that of the Empire State Building.

Earning his BS and MA degrees in physics from William and Mary College, Alexander has been working with NASA since 1962. He characterized Goddard Space Flight Center as having “the atmosphere of a university, except it’s technically oriented. It’s a large group of interested scientists with a fair amount of freedom . . . You get a chance to try out your ideas. People here push themselves because they’re interested in their work.”

When asked whether he planned to stay in Government, Alexander talked of orbiting another satellite in the not-too-distant future, and pointed to a large file of information gathered by Explorer 38. “I wouldn’t want to leave this.”

ELBOW ROOM

Although the Federal Personnel System applies to all agencies of the Government equally, there is enough built-in flexibility to allow agencies to develop programs to meet their individual needs and the special needs of particular groups, like scientists and engineers. Some factors which can be used to give you elbow room are:

- Attendance at conferences of professional societies
- Giving credit lines or otherwise acknowledging contributors to publications
- Freedom to publish, teach or lecture outside of duty hours
- Flexibility of hours of work
- Position titles adapted to the professionals. (Although official titles are used for Government purposes, more descriptive titles may be used for publications and correspondence.)

Your Impact on the Job

Federal jobs are classified on the basis of duties, responsibilities and qualifications required. However, if you excel, you will attract greater responsibilities to yourself to the point where a higher grade may be justified. In this way, you shape the job, rather than letting the job limit you.

Two Track System

You can progress to higher grade levels in a research position without necessarily taking on administrative or supervisory responsibilities. You choose which "track" you take.

No Square Pegs in Round Holes

Jobs, particularly in research, can be tailored to your qualifications. Government is more interested in finding qualified people than in filling inflexible job slots.

Halite



WHY GO GOVERNMENT?

Salaries

Federal salary rates are comparable with private enterprise salaries for the same levels of work. Moreover, in special shortage category occupational fields—among them engineering, physical sciences and mathematics—the entry level salary averages about \$1500 a year more than for other jobs at the same grade. (The usual entry level grade for an applicant without working experience is grade GS-5; however, an outstanding academic record, advanced degrees or graduate work or pertinent research can qualify you to start at grade GS-7, 9, 11, 12.)

Special Recruitment Rates

For positions at grade GS-11 or above, consideration may be given to your existing salary, unique qualifications or the special need of the Government for your services. In this way, you could be appointed at a salary above the minimum rate for the grade level established for the job.

Other Benefits

Moving Expenses . . . Agencies may pay travel and moving costs to your first post of duty.

Annual Leave . . . 13 workdays a year during the first three years of service, 20 days up to 15 years and 26 days for all over 15 years. Military service counts toward length of service for leave purposes.

Paid Holidays . . . 8 a year.

Sick Leave . . . 13 days a year. Unused sick leave may accumulate indefinitely.

Health Benefits . . . a choice among various types of hospital, surgical and medical benefits to employees and their families, with the Government sharing the cost.

Injury Compensation

Retirement . . . a joint contributory system providing annuities, survivorship annuities and death benefits based on age, service or disability.

Addresses of Federal Job Information Centers

ALABAMA 806 Governors Drive, SW. Huntsville 35801 107 St. Francis St. Mobile 36602	451 College Street Macon 31201	MINNESOTA Building 57, Ft. Snelling St. Paul 55111
ALASKA 632 6th Avenue Anchorage 99501	HAWAII Federal Building Honolulu 96813	MISSISSIPPI 802 N. State Street Jackson 39201
ARIZONA 44 West Adams St. Phoenix 85003	IDAHO Federal Building Boise 87302	MISSOURI 601 E. 12th Street Kansas City 64106 1520 Market Street St. Louis 63103
ARKANSAS 923 West 4th St. Little Rock 72201	ILLINOIS 219 S. Dearborn Street Chicago 60604	MONTANA 130 Neill Avenue Helena 59601
CALIFORNIA 851 South Broadway Los Angeles 90014 425 Capitol Mall Sacramento 95814 380 West Court St. San Bernardino 92401 1400 5th Avenue San Diego 92101 450 Golden Gate Avenue San Francisco 94102	INDIANA 36 S. Pennsylvania Street Indianapolis 46204	NEBRASKA 215 North 17th Street Omaha 68102
COLORADO 18th and Stout Streets Denver 80202	IOWA 210 Walnut Street Des Moines 50309	NEVADA 300 Booth Street Reno 89502
CONNECTICUT 450 Main Street Hartford 06103	KANSAS 114 S. Main Street Wichita 67202	NEW HAMPSHIRE Daniel and Penhallow Streets Portsmouth 03801
DELAWARE 11th and King Streets Wilmington 19801	KENTUCKY 721 S. 4th Street Louisville 40202	NEW JERSEY Federal Building 970 Broad Street Newark 07102
FLORIDA 123 S. Court Avenue Orlando 32801	LOUISIANA 600 South Street New Orleans 70130	NEW MEXICO 421 Gold Avenue, SW. Albuquerque 87101
GEORGIA 275 Peachtree Street, NE. Atlanta 30303	MAINE Federal Building Augusta 04330	NEW YORK 26 Federal Plaza New York 10007 301 Erie Blvd., West Syracuse 13202
	MARYLAND Lombard Street and Hopkins Place Baltimore 21201	NORTH CAROLINA 415 W. Hillsborough Street Raleigh 27603
	MASSACHUSETTS P.O. and Courthouse Building Boston 02109	
	MICHIGAN 144 W. Lafayette Street Detroit 48226	

NORTH DAKOTA
112 N. University Drive
Fargo 58102

SOUTH DAKOTA
919 Main Street
Rapid City 57701

WASHINGTON
1st Avenue and Madison Street
Seattle 98104

OHIO
1240 East 9th Street
Cleveland 44199

TENNESSEE
167 N. Main Street
Memphis 38101

WEST VIRGINIA
500 Quarrier Street
Charleston 25301

7 East 4th Street
Dayton 45402

TEXAS
1114 Commerce Street
Dallas 75202

WISCONSIN
161 W. Wisconsin Avenue
Room 215
Milwaukee 53203

OKLAHOMA
210 NW. 6th Street
Oklahoma City 73102

411 N. Stanton Street
El Paso 79901

WYOMING
2005 Warren Avenue
Cheyenne 82001

OREGON
319 SW. Pine Street
Portland 97204

702 Caroline Street
Houston 77002

615 E. Houston Street
San Antonio 78205

PUERTO RICO
255 Ponce de Leon Avenue
San Juan 00917

PENNSYLVANIA
128 N. Broad Street
Philadelphia 19102

UTAH
135 S. State Street
Salt Lake City 84111

DISTRICT OF COLUMBIA
1900 E Street, NW.
Washington, D.C. 20415

1000 Liberty Avenue
Pittsburgh 15222

RHODE ISLAND
Kennedy Plaza
Providence 02903

VERMONT
Elmwood Avenue and Pearl Street
Burlington 05401

SOUTH CAROLINA
Federal Building
Charleston 20403

VIRGINIA
415 St. Paul Boulevard
Norfolk 23510

**Detach and mail to the Federal Job Information Center
serving the area where you want to work.**

I am interested in working for the Federal Government.

Year of college graduation _____

Degree (or degrees) received _____

Years of professional experience, if any _____

Particular field of interest _____

Please send additional information and application forms.

Name _____

Address _____

City _____ State _____ ZIP _____
(must be completed)



GO GOVERNMENT

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